

WHAT WE CLAIM IS:

1. Apparatus for forming three dimensional shaped products from particulate sphagnum moss material including co-operating first and second die members arranged to move from an open configuration to a closed configuration to press form three dimensional shaped products from the particulate material, and a resiliently deformable web extending between the die members for carrying the particulate material thereon which will deform between the die members on each closing of the die members to allow the die members to press the particulate material to the three dimensional shape of the product.
2. Apparatus according to claim 1 wherein the die members include a cavity die part and a plunger die part arranged to press the particulate material on the deformable web into the cavity die part.
3. Apparatus according to either one of claims 1 and 2 wherein the deformable web extends between the die members in tension.
4. Apparatus according to any one of claims 1 to 3 wherein the deformable web is a synthetic fabric material.
5. Apparatus according to claim 4 wherein the deformable web is a synthetic woven or knitted material.
6. Apparatus according to claim 4 wherein the deformable web is a synthetic woven material.
7. Apparatus according to any one of claims 1 to 6 wherein the resiliently deformable web is comprised by a belt of a conveyor arranged to deliver particulate moss material carried by the belt of the conveyor to between the die members.

8. Apparatus for forming three dimensional shaped products from particulate sphagnum moss material including:

a conveyor including a belt formed of a flexible and resiliently deformable material and arranged to carry on the belt of the conveyor the particulate material and arranged to move in steps, and

a press forming stage including a cavity die member positioned beneath the belt of the conveyor and including a shaped die cavity, and a co-operating die member positioned above the belt of the conveyor and arranged to move after each step forward of the conveyor which delivers fresh particulate moss material between the die members, to press the section of the belt of the conveyor between the die members and the particulate material thereon into the cavity die member, to form a shaped product.

9. Apparatus according to claim 8 wherein the belt of the conveyor has sufficient resilience to lift the press formed product from the cavity die member after each operation of the press forming stage.

10. Apparatus according to claim 9 wherein the conveyor is arranged to convey the formed products away from the press forming stage.

11. Apparatus according to any one of claims 8 to 10 including means for continuously delivering particulate moss material onto the conveyor for conveying to the press forming stage.

12. Apparatus according to claim 11 including a spreader for spreading the particulate material to a substantially even thickness layer on the belt of the conveyor.

13. Apparatus according to claim 12 wherein the spreader comprises one or more longitudinal spreaders each arranged to move reciprocally across the conveyor before the press forming stage and rotate about a longitudinal axis of the spreader and carrying a number of spreader fingers.

14. Apparatus according to any one of claims 8 to 13 wherein the belt of the conveyor is formed from a synthetic fabric material.
15. Apparatus according to claim 14 wherein the synthetic fabric material is a woven or knitted synthetic material.
16. Apparatus according to claim 14 wherein the synthetic fabric material is a woven synthetic material.
- 10 17. Apparatus according to any one of claims 8 to 16 including means after the press forming stage for collecting and recycling unused particulate.
18. Apparatus according to any one of claims 8 to 17 including a subsequent packaging stage for shrink packaging each product or numbers of products together.
- 15 19. Apparatus according to any one of claims 8 to 18 wherein the die members are shaped to form products having a truncated approximately conical shape.
20. Apparatus according to claim 8 to 19 wherein the die members are shaped to form products which are wider than they are deep in a plane between in a closed base and an open top of the products.
- 20 21. Apparatus according to any one of claims 8 to 20 wherein the press forming stage comprises two or more pairs of die members for forming two or more products after each step forward of the conveyor which delivers fresh particulate material to the press forming stage.
- 25 22. Apparatus according to claim 21 wherein the die members are interchangeable between die members shaped to form smaller products and die members shaped to form products having a dimension greater across the width of the conveyor than in the direction
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of movement of the conveyor for forming products which are wider than they are deep in a plane between a closed base and an open top of the products.

23. Apparatus according to any one of claims 8 to 22 including a drying stage for kiln
5 drying the particulate moss material before depositing on the conveyor for press forming into products.

24. Apparatus according to claim 23 including a rewetting stage for applying moisture to the particulate moss material to re-condition the moss material after drying but before
10 press forming into products.

25. Apparatus according to any one of claims 8 to 24 including a subsequent packaging stage for packaging the products.

15 26. Apparatus according to any one of claims 8 to 24 including a stage arranged to apply moisture to the exterior of the products to at least partially reconstitute at least part of the exterior of the products to a natural sphagnum moss appearance, after press forming and a subsequent packaging stage for packaging the products in packaging which minimizes moisture loss from the products.

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27. Apparatus according to either one of claims 25 and 26 wherein said packaging stage is arranged to heat shrink package the products in a plastic film material.

25 28. A method for forming three dimensional shaped products from particulate sphagnum moss material including providing co-operating first and second dies, carrying the particulate moss material on a resiliently deformable web extending between the die members, causing the die members to move from an open configuration to a closed configuration to press between the die members the resiliently deformable web and the particulate moss material thereon to the three dimensional shape of the product, and
30 returning the die members to the open position to release the press-formed product.

29. A method according to claim 28 including withdrawing the product from the cavity die part by causing the deformable web to return to its original configuration, so lifting the product from the die cavity.
- 5 30. A method according to either one of claims 28 and 29 wherein the die members include a cavity die part and including causing the plunger die part to move to press the particulate material on the deformable web into the cavity die part.
31. A method according to any one of claims 28 to 30 wherein the deformable web is a
10 synthetic fabric material.
32. A method according to claim 31 wherein the deformable web is a synthetic woven or knitted material.
- 15 33. A method according to claim 31 wherein the deformable web is a synthetic woven material.
34. A method according to any one of claims 28 to 33 wherein the resiliently deformable web is comprised by a belt of a conveyor arranged to deliver particulate
20 material carried by the belt of the conveyor to between the die members.
35. A method for forming three dimensional shaped products from particulate sphagnum moss material including:
- 25 carrying the particulate moss material to a press forming stage on a conveyor including a belt formed of a flexible and resiliently deformable material and arranged move in steps, the press forming stage including a cavity die member positioned beneath the belt of the conveyor and including a shaped die cavity and a co-operating die member positioned above the belt of the conveyor, to press the section of the belt of the conveyor between the die members and the particulate material thereon into the cavity die member to
30 form a shaped product, and

after each operation of the press forming stage causing the conveyor to step onto deliver fresh particulate material between the die members.

36. A method according to claim 35 wherein the belt of the conveyor has sufficient
5 resilience to lift the press-formed product from the cavity die member after each operation of the press forming stage.

37. A method according to claim 36 including causing the conveyor to convey the
10 formed products away from the press forming stage.

38. A method according to any one of claims 35 to 37 including spreading the
particulate material to a substantially even thickness layer on the belt of the conveyor before
the press forming stage.

39. A method according to any one of claims 35 to 38 wherein the belt of the conveyor
15 is formed from a synthetic fabric material.

40. A method according to claim 39 wherein the synthetic fabric material is a woven
or knitted synthetic material.

41. A method according to claim 39 wherein the synthetic fabric material is a woven
20 synthetic material.

42. A method according to any one of claims 35 to 41 including for collecting and
25 recycling unused particulate after the press forming stage.

43. A method according to any one of claims 35 to 42 including subsequently
packaging each product or numbers of products together.

44. A method according to any one of claims 35 to 42 including applying moisture to
30 the exterior of the products to at least partially reconstitute at least part of the exterior of the

products to a natural sphagnum moss appearance after press forming, and subsequently packaging the products and packaging which minimizes moisture loss from the products.

45. A method according to either one of claims 43 and 44 including heat shrink
5 packaging the products in a plastics film material.

46. A method according to any one of claims 35 to 45 wherein the die members are shaped to form products having a truncated approximately conical shape.

10 47. A method according to claim 35 to 46 wherein the die members are shaped to form products which are wider than they are deep in a plane between a closed base and an open top of the products.

48. A method according to any one of claims 35 to 47 including press forming two or
15 more products after each step forward of the conveyor which delivers fresh particulate material to the press forming stage, by two or more pairs of die members at the press forming stage.

49. A method according to claim 48 wherein the die members are interchangeable
20 between die members shaped to form smaller products and die members shaped to form products having a dimension greater across the width of the conveyor than in the direction of movement of the conveyor for forming products which are wider than they are deep in a plane between a closed base and an open top of the products.

25 50. A method according to any one of claims 35 to 49 including drying the particulate moss material before depositing on the conveyor for press forming into products.

51. A method according to any one of claims 35 to 50 wherein the sphagnum moss is moss of any of the following species, alone or in combination: Sphagnum Falciculatum;
30 Sphagnum Subnitens; Sphagnum Cristatum; Sphagnum Australe; Sphagnum Subsecundum.

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52. A three dimensional shaped product produced by the method of any one of claims 28 to 51.
53. A three dimensional shaped product which is a plant container liner produced by the method of any one of claims 28 to 51.
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